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Summering in the Sierra. A Bit of Forest-Study by John Muir. The Royal Sequoia-Its Beauty and Impressiveness-Its Cones and Timber-Doom of the Coniferae-A Forest Hermit. (From Our Own Correspondent.) Fresno Grove of Big Trees, Sept., 1875.

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[FROM OUR OWN CORRESPONDENT.]

FRESNO GROVE OF BIG TREES, Sept., 1875.

A few days ago while camped in the fir woods on the head of one of the southmost tributaries of the Merced, I caught sight of a lofty granite dome, called Wa-mello by the Indians, looming into the free sky far above the forest, and though now studying trees, I soon found myself upon its commanding summit. Here I obtained glorious views of the wide fertile valleys of the Fresno, filled with forests; innumerable spires of yellow-pines towering above one another on the sloping heights; miles of sugar-pine with feathery arms outstretched in the sunshine; and toward the southwest I beheld the lofty dome-like crowns of the sequoia, rising here and there out of the green slopes and levels of the pines, singly or densed together in imposing congregations. There is something wonderfully impressive in this tree, even when beheld from a great distance; their dense foliage and smoothly rounded outlines enables one to recognize them at once in any company, to say nothing of their superior size and kingliness. They grow upon ridge tops as well as in sheltered ravines, and when one of the oldest kings attains full stature on some commanding height, he seems the very god of the woods. No tree in the Sierra forest has foliage so densely massed, or presents outlines so constant in form or so finely drawn as Sequoia. Fortunate old trees that have reached their three thousandth birthday without injury from fire or frost, present a mound like summit of warm yellow green foliage. Younger trees are darker in color, and shoot up with summits comparatively sharp, but not at all arrowy like those of the fir or pine. Their colossal brown trunks finely tapered and furrowed, may often be seen glowing in the sun, branchless, to a height of 150 feet, yet not altogether leafless, for green sprays occur at intervals, making flecks of shadow, and seeming to have been pinned on as ornamental rosettes for the sake of beauty alone. The ripe cones are green as cucumbers, and measure about two inches in length and one and a half in diameter, made up of about forty diamond-shaped scales, densely packed with from five to eight seeds at the base of each. Each cone, therefore, contains from two to three hundred seeds. The seeds resemble those of the common parsnips, and are about one-fourth of an inch long by three-sixteenths of an inch wide, the greater portion of the bulk being taken up by a thin, flat, scale-like wing, which, when the seed is set free to seek its fortune, makes it fly off glancingly to its growing place like a boy's kite. The seeds are nearly ripe now, and there is sufficient in this grove alone to plant the globe. No other California conifer produces anything like as many seeds. Some trees certainly ripen more than a million, while one might easily number the nuts of the most fruitful pine in a single day.

COLORING MATTER—TIMBER OF THE BIG TREE.

At the base of the scales and in contact with the seeds there is a considerable quantity of a dark, gritty substance, which dissolves readily in water and yields a magnificent purple color which may probably be utilized; certainly it seems well worthy of careful experiment, as it may be obtained in large quantities at a very slight cost, and the quantity of coloring matter, to say nothing of other properties, must make it exceedingly valuable should it prove available. A single cone will color a bucket of water a delicious transparent purple, that seems perfectly constant. I have myself used it as ink, and I find it first-rate; and I have also drank it, hoping thereby to improve my color and render myself more tree-wise and sequoical.

The timber of the Big Tree, besides being beautiful, is easily worked, and is more enduring than any other that I know of. Build a house of sequoia logs and lay the foundation upon solid granite, and that house will last about as long as the rock. Or fell a sequoia in the dank decomposing woods and with it lay any species of oak, pine or fir, and these will be rotted and weathered out of sight before the main body of sequoia will have suffered the slightest appreciable decay or changed color. Indeed, fire seems to be the only decomposing agent that has any effect upon it. I have in my possession a specimen of the wood of the Sierra sequoia, which neither in color, strength or any other property can be distinguished from specimens cut from living trees: yet the trunk from which this specimen was obtained has lain upon the damp ground exposed to all kinds of weathering for at least three hundred and eighty years, and probably twice as long or more. The evidence in the case is simply this: a tree fifteen or twenty feet in diameter fell upon one of these Fresno hillsides, and in falling, the ponderous trunk sunk into the ground thus making a wide ditch or furrow about five or six feet deep, and in the middle of this ditch, where a portion of the trunk had been removed by fire, I found a silver fir (*Picea Grandis*) growing, that is four feet in diameter and three hundred and eighty years old, demonstrating that the age of my specimen must be this great at least. But in order to arrive at the whole age it would of course be necessary to know how many years elapsed before the portion of the ditch occupied by this silver fir

was laid bare by fire and also how much time passed after the clearing of the ditch ere the seed was planted from which the silver fir sprung. This instance of the durability of sequoia timber is by no means a rare one. Fragments of trunks quite as ancient are to be found all through the grove, showing the same wonderful state of preservation, and manifesting their ages by various phenomena whose interpretation can hardly be missed. With regard to the strength of the timber I can say little, never having made any measured tests, yet it appears to be quite as strong as the best fir. When a large tree falls its branches break in pieces like the chalky bones of an old man. The main trunk also breaks straight across several times even where the ground is level. One noble specimen that stood two hundred and seventy-five feet high and measured twenty-two feet in diameter at the base and was felled a short distance from here by digging around and cutting the main roots, and in falling, the trunk broke straight across in no less than ten places. Although I have observed several trunks of young trees five or six feet in diameter that were felled on rough ground without breaking at all. I also examined some seasoned saplings from three inches to a foot in thickness and found the wood exceedingly tough and elastic.

A DECAYING SPECIES.

The big tree is sometimes regarded as a sort of companionless species whose relations have disappeared and as not properly belonging to the flora of the present geological age. These views, however, are mostly erroneous; for though it is true that as a specie this mastodon of the vegetable kingdom has come to its period of decadence, many other species among our mountain flora are in the very same condition. Species develop and die like individuals, animals as well as plants; and man, at once the noblest and most conceited species on the globe, will as surely become extinct as mastodon or sequoia. But unless destroyed by man sequoia is in no immediate danger of extinction; it is perhaps scarcely farther past prime than either of our two silver firs, and judging from present conditions and its history as far I have been able to read, it will live until A. D., 15,000 at least. The other day I counted no less than 536 sequoia saplings and sproutings growing promisingly upon a piece of ground not exceeding two acres, and specimens of every age, from one year to three or four thousand occur in this one grove. The causes at work to effect the extinction of the species are chiefly the decay of the soil on which they are growing, changes in drainage, changes in climate and the invasions of other trees, together with fire and the ax.

THE DOOM OF THE CONIFERAE.

As far as the uses of man are concerned the Sierra crop of coniferae is ripe, and in all probability will be speedily harvested. New lumber companies are coming into existence almost every year. Mills have just been built here, and a flume which is to extend down the Fresno to the railroad is being vigorously pushed toward completion, when the magnificent firs and pines of the Fresno woods, together with the big trees, will be unsparingly lumbered and floated to market.

A FOREST HERMIT.

A while ago I came drifting through the gorges and woods from the Mariposa trees, arriving here when the grove was full of noon sunshine, and in sauntering from tree to tree, making my way through hazel and dogwood and over huge brown logs, I came suddenly upon a handsome cottage with quaint, old-fashioned chimney and gables, every way uncommon, and so new and fresh that it still smelled of balsam and rosin like a newly felled tree. Strolling forward, wondering to what my strange discovery would lead, I found an old, gray-haired man, sitting at the door upon a bark stool, weary-eyed and unspeculative and seemingly surprised that his fine forest hermitage had been discovered. After drinking at the burn that trickles past the door, I sat down beside him and bit by bit he gave me his history, which, in the main, is only a sad illustration of early California life during the gold period, full of intense experiences, now up in exciting success, now down in crushing reverses, the day of life waning meanwhile far into the afternoon, and long shadows turning to the east; health gone and gold; the game played and lost; and now, creeping into this solitude, where he may at least maintain independence, he awaits the coming of night. How sad the tones of the invisible undercurrent of many a life here, now the clang and excitements of the gold battles are over. What wrecks of hopes and health, and how truly interesting are those wrecks. Perhaps no other country in the world contains so many rare and interesting men. The name of my hermit friend is John A. Nelder, a man of broad sympathies, and a keen intuitive observer of nature. Birds, squirrels, plants all receive loving attention, and it is delightful to see how sensitively he feels the silent influences of the woods. How his eye brightens as he gazes upon the grand sequoia kings that stand guard around his cabin. How he pets and feeds the wild quails and Douglass Squirrels, and how tenderly he strokes the sapling sequoias, hoping that they will yet reach the full stature of their race and rule the woods.

To-morrow I will push on southward along the sequoia belt, making special studies of the species and visiting every grove as far as its southernmost limit.

JOHN MUIR.